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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/237,356	01/26/1999	SANDEEP CHENNAKESHU	027575-174	7645

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EXAMINER

KUMAR, PANKAJ

ART UNIT PAPER NUMBER

2631

DATE MAILED: 07/01/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/237,356

Applicant(s)

CHENNAKESHU ET AL.

Examiner

Pankaj Kumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/10/2004 have been fully considered but they are not persuasive.
2. Applicant indicated in his response that he wants the examiner to call him for an interview if this action is final. Examiner called Gregory Stephens on 6/21-6/22/2004 to arrange for an interview. At this time, it was decided that he may call me for an interview after he has seen the final action.
3. Applicant argues that Namekata has a two step LS/LMS approach while applicant's invention assumes that the first step of obtaining channel estimates has concluded and thus only focuses on the remaining step. So applicant is arguing that the portions cited in the reference relate to step one while applicant has focused on step two. This is not persuasive since if the limitations between applicant's step two are the same as the limitations of reference's step one, the prior art is still reading on the limitations. Also, applicant has not claimed steps one and/or two.
4. Applicant argues that precomputing is not taught in Namekata. This is not persuasive since Namekata teaches calculation in advance as cited in the prior action. Also, since LS is occurring before LMS in Namekata, LS is calculated in advance of LMS.
5. Applicant argues that Namekata is teaching LS and applicant's invention has nothing to do with LS. This is not persuasive since as the individual elements of the applicant's claim read on cited portions of Namekata, it does not matter that Namekata called its one portion LS and the applicant did not call it LS.

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6. Applicant argues that the portion in Namekata cited as teaching precomputing is the same portion cited as teaching adding. This is not persuasive since precomputing is taught in certain sections of columns 9 and 10 while adding is taught in certain other section(s) of column 10.

7. Applicant argues that Namekata does not create, maintain, nor use a product look up table. This is not persuasive since the create, maintain, nor use language was not claimed. The office cited the matrix in Namekata as being the product lookup table which is used in various claimed steps such as storing and adding.

8. Applicant argues that Kumar does not teach applying the branch metrics to a receiver and an MLSE equalizer since Kumar teaches MLSE decoding while applicant is claiming MLSE equalizing. Thus applicant seems to argue that Kumar teaches that the branch metrics are after the convolution step while in applicant's invention the branch metrics are before the convolution step. This is not persuasive since applicant has not claimed applying the branch metrics to a receiver and an MLSE equalizer. Applicant has also not claimed branch metrics to be before convolution (storing, adding, etc.). What the applicant has claimed in part is "a plurality of possible values to be used in determining a branch metric" (emphasis added) and then working (storing, adding, etc.) with the POSSIBLE values. Applicant is correct in saying that Kumar teaches that the output of the equalizer goes to a decoder which uses branch metrics. Kumar's equalizer is determining and working with POSSIBLE values (storing, adding etc.) as it is convolving. These possible values are used to determine the branch metrics since the output of the equalizer goes to the decoder which determines branch metrics.

9. Applicant defines in his arguments that MLSE equalizing is used to handle distortion introduced by the radio channel while MLSE decoding is used to decode a FEC code applied at

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the transmitter. Then applicant argues that Kumar teaches decoding after equalizing so the trellis in the decoder cannot be used in the equalizer. This is not persuasive since it was written in the prior action that Kumar does not teach MLSE equalizing but it would have been obvious for it to teach MLSE equalizing as it teaches equalizing and various algorithms.

Response to Amendment

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. See prior action for details.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1, 2, 3, 4, 5, 9, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Namekata USPN 5673294.

15. See prior action for details.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1,2,4,5,6,7,9,10,12,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar US patent no. 5,949,796. See prior action for details.

18. Claims 3, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar in view of Arslan et al. US patent no. 6,108,517. See prior action for details.

19. Claims 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Namekata in view of Kumar. See prior action for details.

20. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Namekata in view of Arslan. See prior action for details.

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on Mon, Tues, Wed and Thurs after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (703) 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PK

TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER

